

tion of its chase was surely written by one who loved "the sport."

We would freely acknowledge the literary charm, the wealth of metaphor, the artistic qualifications, and the excellent powers of observation of our beachcomber. At the same time we direct attention to some faults in his work, because we hope to see it pass into a second edition and become a classic for naturalists. In the first place a hundred pages are dragged in quite irrelevantly at the end on the characteristics of black boys, while the last gin on Dunk Island died in 1900. The chapters are unpleasantly broken up into sections, often absolutely disconnected. The studies of the interrelations of climate, of soil, of plant life, and of animal life are what make the works of our great naturalists of enduring value. Our author is peculiarly vivid and discriminating where he allows himself to

The circumstance most affecting the labour of a Japanese in studying chemistry and other sciences, at least in the earlier days, has been the necessity to acquire ideas through one or more foreign tongues—English, German, French, Dutch—as far removed in grammar from his own tongue as could well be. This fact does, indeed, add seriously to his labour in his younger days, but it is ultimately quite other than detrimental to his progress. For this labour is largely due to the necessity from the first of getting a clear notion of the meaning of terms, which, when obtained, should be a precious possession to everyone. So, too, it may be said of the apparent burden on the youthful Japanese of having to acquire facility in writing, and that, too, with a soft brush, the vast and elaborate script of his own language. For, whilst it is true that to do so takes years of school life, it is certain and



FIG. 2.—Alcyonaria (leathery Corals) and Oysters. From "The Confessions of a Beachcomber."

draw such pictures, and we would have more of them. He has half-a-dozen islets at hand, and the varied coast of Queensland. Scientific terms and names should be carefully checked to ensure correctness. Lastly, an index is essential.

J. S. G.

CHEMISTRY IN JAPAN.¹

ALTHOUGH a very few Japanese, through reading works in Dutch, had been experimenting in chemistry some fifty years ago, it was not until about a third of a century back that the science began to be taught in Japan by experiment and by courses of lectures, and that soon after young men of that nation, already trained in chemistry, were to be seen, though rarely, in British and other European laboratories.

¹ Collection of Papers contributed on the occasion of the celebration of Prof. J. Sakurai's jubilee. Reprinted from the Journal of the College of Science, vol. xxv. (Tokyo, August, 1908.)

quite obvious that the task gives such delicacy of touch and such deftness in the use of the hands as proves invaluable afterwards in the arts and in the laboratory.

Somewhat more than a year ago, the half-jubilee or twenty-five years' professorship of chemistry in Tokyo of Dr. Joji Sakurai was celebrated by his colleagues, pupils, and other friends. To enlarge upon Prof. Sakurai's career as a chemist not being the object of this communication, it suffices to say of him that he is no stranger in this country, that he is the author of well-known researches, that his influence as a teacher in Japan has been great, and that he is now the director of the Imperial College of Science in Tokyo, as well as one of the professors of chemistry.

The particular purpose of this article is to direct the attention of those interested in scientific development to an incident in connection with the jubilee which, though common enough in similar cases in Germany, seems quite remarkable in a country so

young in science as Japan. This was the proffer by Sakurai's chemical colleagues of a number of original papers, some ready and others nearing completion, to be published together as a festschrift number of the *Journal of the College of Science* in honour of the event. Together they form nearly half of vol. xxv. of the journal, the rest of the volume, it is of interest to state, consisting of a botanical paper in Latin by B. Hayata, entitled "*Flora Montana Formosæ*," and illustrated by forty-one exquisite plates. Prefixed to the copies of the chemical part of the volume which have been issued separately for presentation purposes is a biographical sketch of Sakurai, by Prof. N. Matsui, director of the College of Agriculture.

The contents of this publication are ample evidence of the striking and wonderful success, in the course of relatively few years, of Japan's venture into the field of chemical research. There are seventeen papers, touching nearly all parts of present chemical investigation, all of them of value as original contributions, some of very considerable value, and most of them fixing the attention. In abstract they are now appearing, or have already appeared, in European journals; any one of them would have been accepted for publication here or in Germany (two are in German). One was partly published at the time of the jubilee in the *B. d. deutschen chem. Gesellschaft*.

"The Viscosity of Dilute Alcoholic Solutions," by T. Hirata; "Die Anomalie der starkeneinwertigen Electrolyte," by M. Katayama; and "Coagulation of Colloidal Aluminium Hydroxide by Electrolytes," by S. Kawamura, are three examples of excellent work. Two other papers, "The Fusion Curves of the System, Naphthalene-phenol," and "The Fusion Surfaces of the System, Naphthalene-chlorobenzene-phenol," the post-graduate work of two of Prof. K. Ikeda's pupils, T. Yamamoto and H. Hirose, are also of high excellence. The paper by Prof. Ikeda himself, on "The Chemical Theory of Solutions," part i., which covers eighty quarto pages, is particularly worthy of attention. It is, in fact, a short treatise which, when part ii. can be added to it, should have publication in book form, so valuable does it appear to be. It is an exceptionally clear exposition of the subject in admirable English, showing marked originality of treatment, fully illustrated by curves, and mathematically discussed, altogether a most interesting paper.

"The Inversion of Cane-sugar," by Y. Osaka; "Complex Ferri-malonates," by M. Matsui; "Constitution of Elæomargaric Acid," by T. Kametaka; "Japanese Oils," by the same; "Ueber den Hauptbestandteil des japanischen Lacks," by Majima and Cho; "Oximes and Imides of Benzenedisulphonic Acids," by T. Suzuki; "Formation of *p*-Oxycarbostyryl from *o*-Nitrobenzoylacetic Acid," by K. Matsubara; and "Molecular Re-arrangement of N-Benzylbenzal-oxime," by M. Kuhara, are also interesting contributions.

There is a paper by, like Prof. Kuhara, another well-known chemist, Prof. T. Haga, entitled "A Simple Method of preparing the Imides of the Aromatic Sulphonic Acids," which is a perfect little piece of work of its kind, admirably written. There are still to be noticed two papers by Prof. M. Ogawa which, from their subjects, will be of greater general interest than any other member of this group of Japanese papers, for they seem to establish the existence of two new elements among the metals, *nipponium*, and another not yet named. These papers recently appeared in full in the *Chemical News*. Mr. Ogawa was, two or three years ago, in London, working upon the new mineral, *thorianite*, placed in his hands by Sir William Ramsay. Some

of this mineral he took back with him to Japan, where he has discovered other mineral sources of both these elements.

Besides the contents of Sakurai's jubilee part of the *Journal of the Tokyo College of Science*, other important chemical papers have, from time to time, appeared in that journal, and in English and German journals. But the appearance of this budget of papers on chemical research offers itself now as a striking proof of the remarkable progress which has taken place in the pursuit of chemistry by a nation which, thirty years ago, was nearly ignorant of any significant part of it. That in physics and in the biological sciences the Japanese have equally advanced under similar conditions is, of course, familiar to many of the readers of NATURE.

EDWARD DIVERS.

THE AGEING OF STEEL.

A MEMORANDUM, by Mr. C. E. Stromeier, the chief engineer of the Manchester Steam Users' Association, just issued, deals with the important question of the ageing of steel, especially that used for steam-boilers. It is now twenty-five years since mild steel began to come into use for boilers, and some definite conclusions have been reached as to its behaviour with time. Tensile and bending tests of steel, cut from boiler plates which have been in use for many years, show that the tenacity has remained practically unaltered, while the ductility, as measured by the elongation, has not been affected. It is known that even the best Lowmoor iron boiler plates become brittle with long-continued use, and it is important to know if this happens with steel plates, but no very definite conclusions appear to have been reached, although it was found that the effect of an injury, such as a chisel nick, or a serious deforming pressure, is not an immediate one, except as regards local alteration of shape, but that after the lapse of many weeks the neighbourhood of the injured region gets somewhat brittle.

A very complete account is also given of the causes which produce water-hammer in steam pipes, and the pressures reached in various cases are worked out in some detail, showing very conclusively the superiority of mild steel over cast iron for steam pipes, not only on account of its superior tenacity, but also by reason of its capacity to absorb sudden shock by its elastic and plastic deformation.

NOTES.

WE notice with sincere regret the announcement in the daily papers that Lord Rayleigh, who, accompanied by Lady Rayleigh, left England recently for a tour round the world, has been so ill in South Africa that he has abandoned a proposed visit to Australia, and will probably winter in Egypt. Later reports state that, though his lordship has been seriously ill, he is now much better.

THE one-hundredth anniversary of the birth of Charles Darwin will occur on Friday of next week, February 12. To celebrate this event the New York Academy of Sciences will hold a special meeting on the anniversary day at the American Museum of Natural History. We learn from *Science* that in addition to the presentation to the museum of a bust of Darwin—the presentation to be made by Mr. Charles F. Cox, president of the academy, and the acceptance by Dr. Henry F. Osborn, president of the museum—addresses will be given on Darwin's work in botany, by Prof. N. L. Britton; on Darwin's work in zoology, by Prof. H. C. Bumpus; and on Darwin's work in geology, by Prof. J. J. Stevenson.